

SECTION –A (MULTIPLE CHOICE QUESTIONS)

1.	(B) $\frac{3}{7}$
2.	(A) $\frac{1}{7}$
3.	(D) $\sqrt{a^2 + b^2}$

SECTION B(2 MARKS QUESTIONS)

4.	<p>$P(B)=2P(R)$</p> $\Rightarrow \frac{x}{5+x} = 2 \times \frac{5}{5+x}$ $\Rightarrow x = 2 \times 5$ $\Rightarrow x = 10$
5.	$\Rightarrow \sqrt{\{x - (a + b)\}^2 + \{y - (b - a)\}^2} = \sqrt{\{x - (a - b)\}^2 + \{y - (a + b)\}^2}$ $\Rightarrow \{x - (a + b)\}^2 + \{y - (b - a)\}^2 = \{x - (a - b)\}^2 + \{y - (a + b)\}^2$ $\Rightarrow x^2 - 2x(a + b) + (a + b)^2 + y^2 - 2y(b - a) + (b - a)^2$ $= x^2 + (a - b)^2 - 2x(a - b) + y^2 - 2y(a + b) + (a + b)^2$ $\Rightarrow -2x(a + b) - 2y(b - a) = -2x(a - b) - 2y(a + b)$ $\Rightarrow ax + bx + by - ay = ax - bx + ay + by$ $\Rightarrow 2bx = 2ay \Rightarrow bx = ay$

SECTION – C (3 MARKS QUESTIONS)

6.	<p>(A) $\frac{1}{2}$ (B) $\frac{2}{5}$ (C) $\frac{1}{2}$</p>
7.	<p>$P(\frac{2k+8}{k+1}, \frac{k-9}{k+1})$ also lies on the line $2x + 3y - 5 = 0$</p> $\therefore \frac{2(2k+8)}{k+1} + \frac{3(k-9)}{k+1} - 5 = 0$ $\frac{4k+16}{k+1} + \frac{3k-27}{k+1} - 5 = 0$ $4k + 16 + 3k - 27 - 5k - 5 = 0$ $\Rightarrow 2k = 16$ $\Rightarrow k = 8$

SECTION – D (5 MARKS QUESTIONS)

8.	<p>Given that the triangle is equilateral $\Rightarrow AB = BC = CA$</p> <p>Consider $AC = BC$</p> $\sqrt{(x + 4)^2 + (y - 3)^2} = \sqrt{(x - 4)^2 + (y - 3)^2}$ <p>After solving $x = 0$</p>
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	<p>Consider $BC = AB$</p> $\sqrt{(x - 4)^2 + (y - 3)^2} = 8$ $\Rightarrow (x - 4)^2 + (y - 3)^2 = 64$ <p>After solving, $y = 3 \pm 4\sqrt{3}$</p> <p>co-ordinates of the third vertex is $(0, 3 - 4\sqrt{3})$.</p>
9.	<p>(A) $\frac{11}{13}$</p> <p>(B) $\frac{5}{13}$</p> <p>(C) $\frac{4}{13}$</p> <p>(D) $\frac{1}{4}$</p> <p>(E) $\frac{1}{52}$</p>
SECTION – E (CASE STUDY)	
10.	<p>(A) $\frac{1}{12}$</p> <p>(B) $\frac{1}{9}$</p> <p>(C) $\frac{5}{36}$</p> <p>(D) $\frac{2}{9}$</p>